

Overview

Groundwater Contamination

Industrial Sites / Ringwood

McHenry County Department of Health
Division of Environmental Health

May 2006

The logo for the McHenry County Department of Health (MCDH) is located in the bottom right corner. It consists of the letters "MCDH" in a bold, blue, sans-serif font, enclosed within a blue oval with a thin black border.

MCDH

Presentation Overview

- **Agencies Involved / Agency Roles**
- **General Groundwater Flow**
- **What is the Process when Groundwater Contamination is Identified?**
- **Overview Site Specific Information**

Agencies Involved / Agency Roles

Environmental Protection Agency

- Over-site Agency for Groundwater Contamination
- Voluntary Site Remediation Program
- Enforces Federal Maximum Contaminant Levels (MCLs)
- “Right-To-Know” & Community Relations

Illinois Department of Public Health

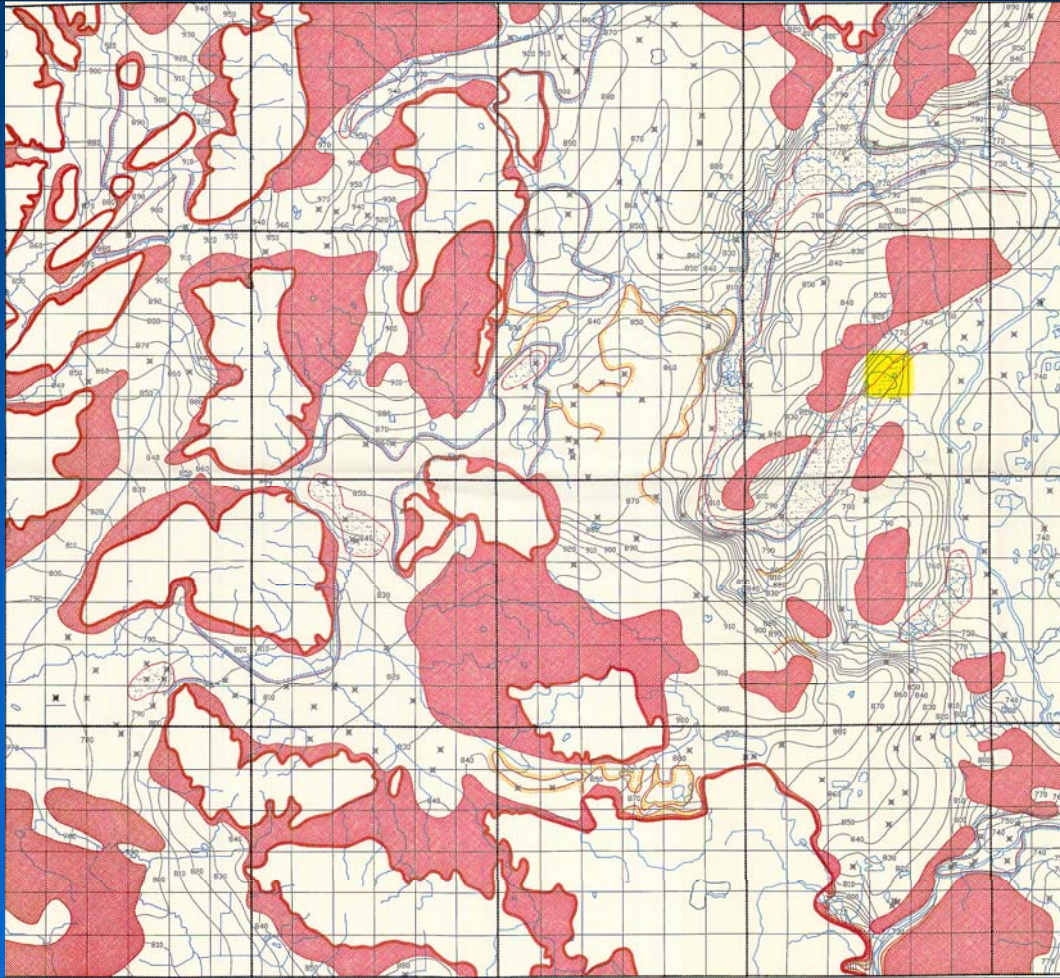
- Non-Community Public Water Supplies

McHenry County Dept. of Health

- Gather Information from Regulatory Agencies
- Liaison with the Public

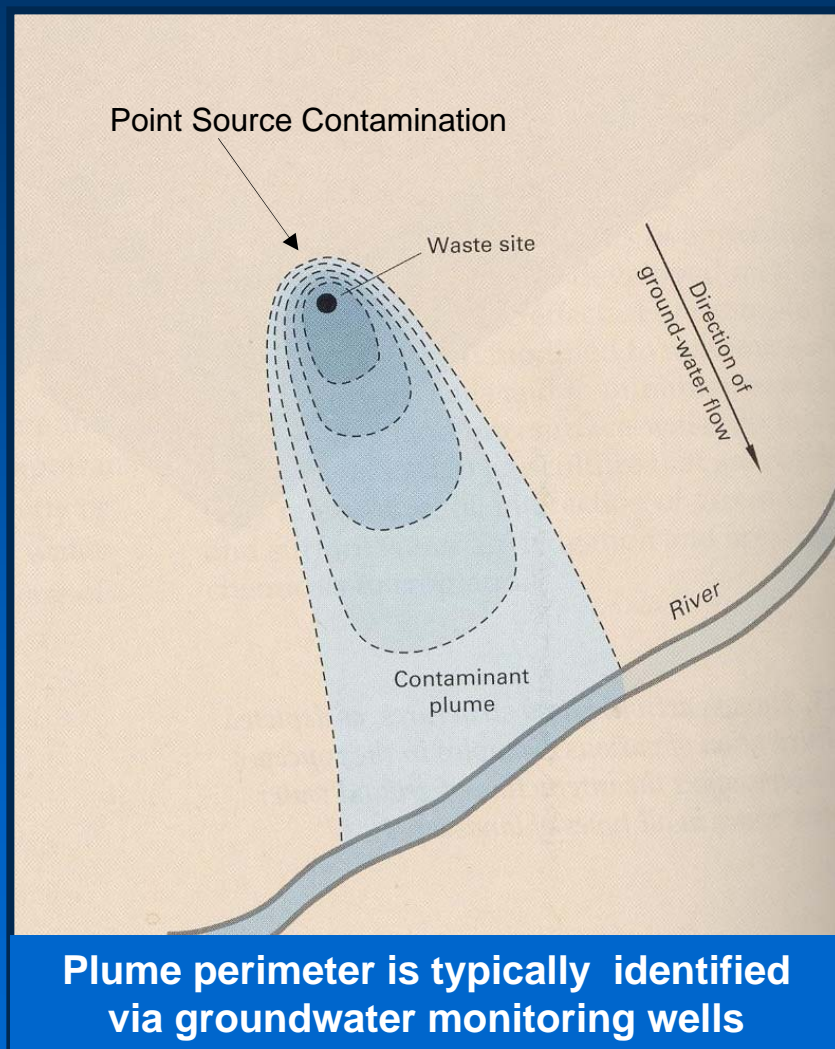
MCDH

CHARACTERISTICS OF GROUNDWATER



- Flow path
- Predictable
- Flow from high point to low point
- Shallow groundwater tends to flow toward surface bodies of water - discharge point.

Contamination from a Point Source



PLUME SIZE & DIRECTION IS DETERMINED BY:

- Geology of site
- Amount of groundwater
- Groundwater flow pattern
- Contaminants involved

MCDH

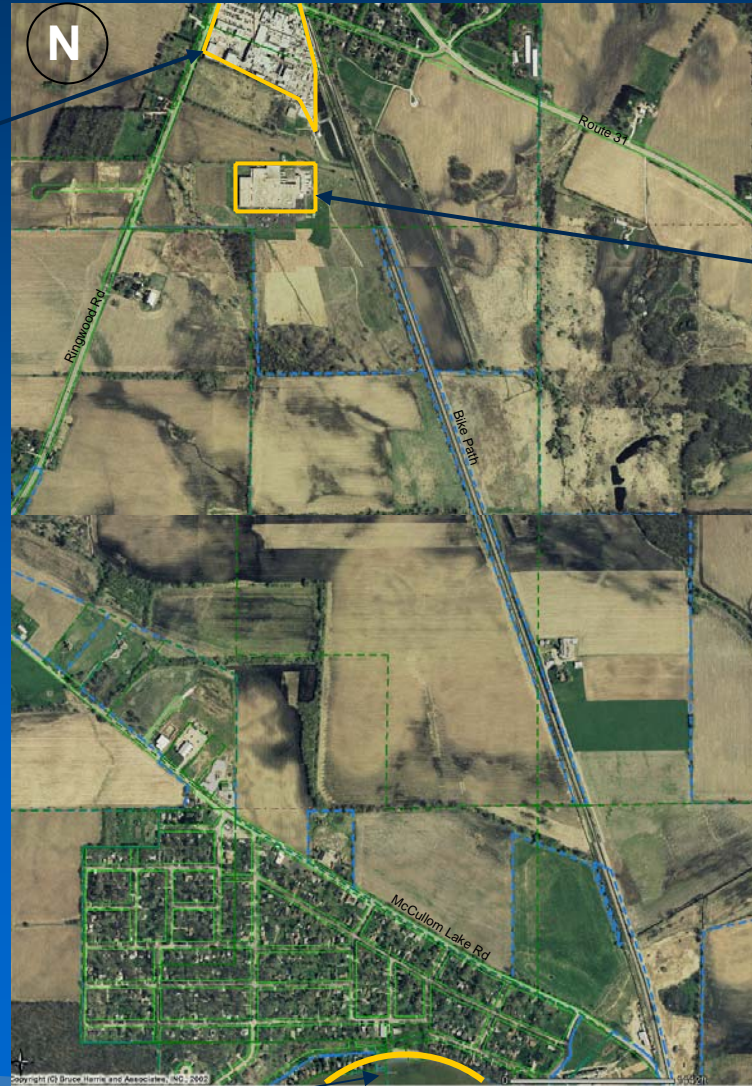
What Happens When Groundwater Contamination is Detected?

1. Eliminate the Source
2. Assess Route / Extent of Contamination
 - Onsite & Offsite, Soil, Groundwater, Etc.
3. Evaluate Potential for Exposure to Humans
4. Remediation / Corrective Measure Taken

Ringwood Sites Point of Reference

Rohm & Haas

Modine Mfg.



McCullom Lake

MCDH

Summary of Activities

Information Gathering

- Environmental Protection Agency**
- IDPH**
- Rohm & Haas**
- Modine Manufacturing**

Consultation with Village of McCullom Lake

Water Sample Collection

Background

ROHM & HAAS

- **1984 Environmental Assessment**
- **1991 Voluntary Site Remediation Program**
- **Active Remediation System**
- **Includes Sampling of Neighboring Water Wells**
- **2005 Upgraded Remediation System**

MODINE

- **1990 Environmental Assessment**
- **Voluntary Site Remediation Program**
- **Active Remediation System**

MCDH

Constituents Identified

VARIETY OF CHEMICAL COMPOUNDS

Primary Concern:

- **Trichloroethylene (TCE)**
Solvent, household products
- **Vinyl Chloride**
Plastics and vinyl products
- **1,2 Dichloroethene**
General solvent
- **1,1 Dichloroethene**
Plastics, flexible food wrap
- **Benzene**
Gasoline, make other chemicals for plastics
- **Nitrogen Ammonia**
- **Chloride**

Breakdown
products of
TCE

Maximum Groundwater Contaminant Levels

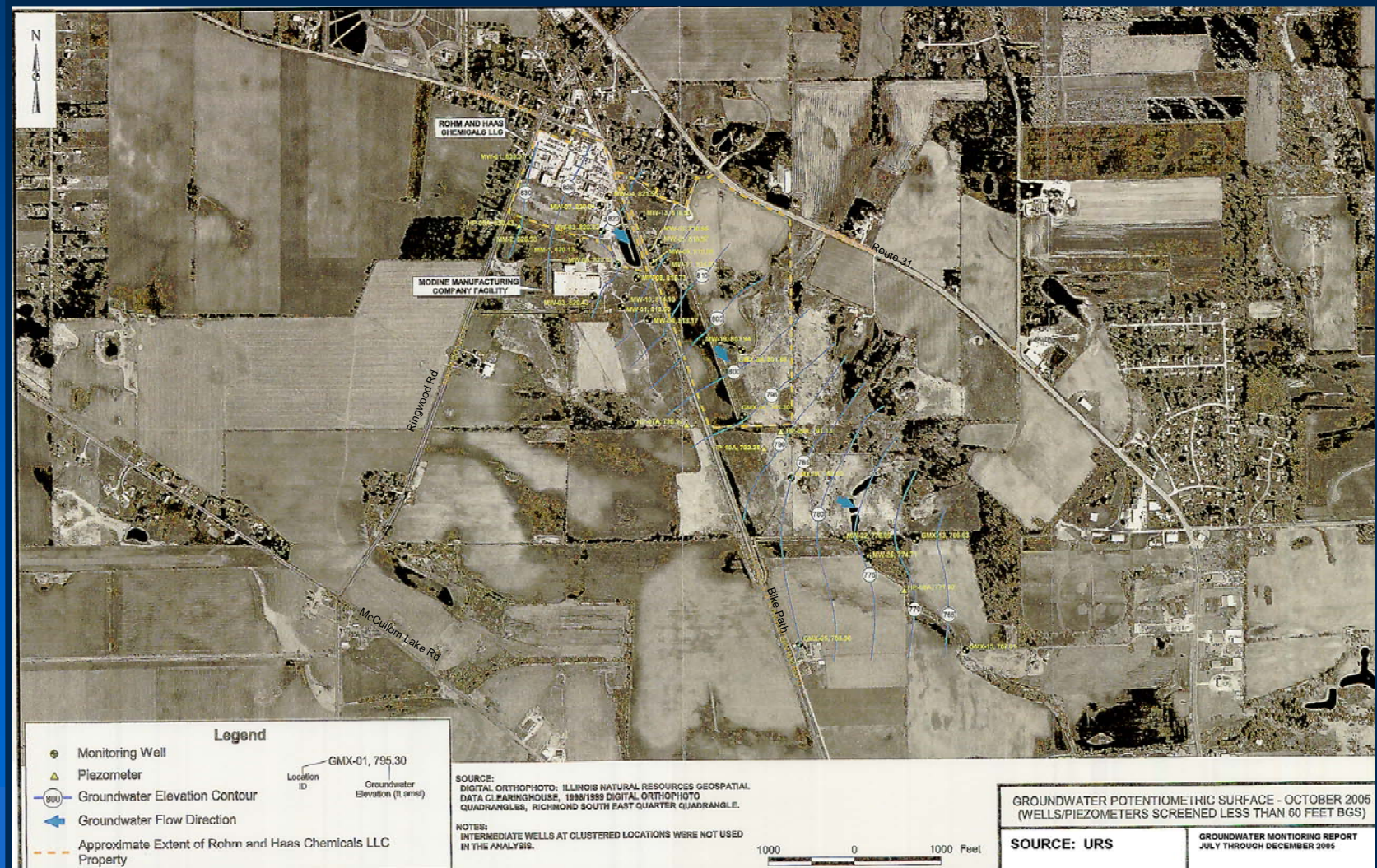
CHEMICAL COMPOUNDS

- Trichloroethylene (TCE)
- Vinyl Chloride
- 1,2 Dichloroethene
- 1,1 Dichloroethene
- Benzene
- Nitrogen Ammonia
- Chloride

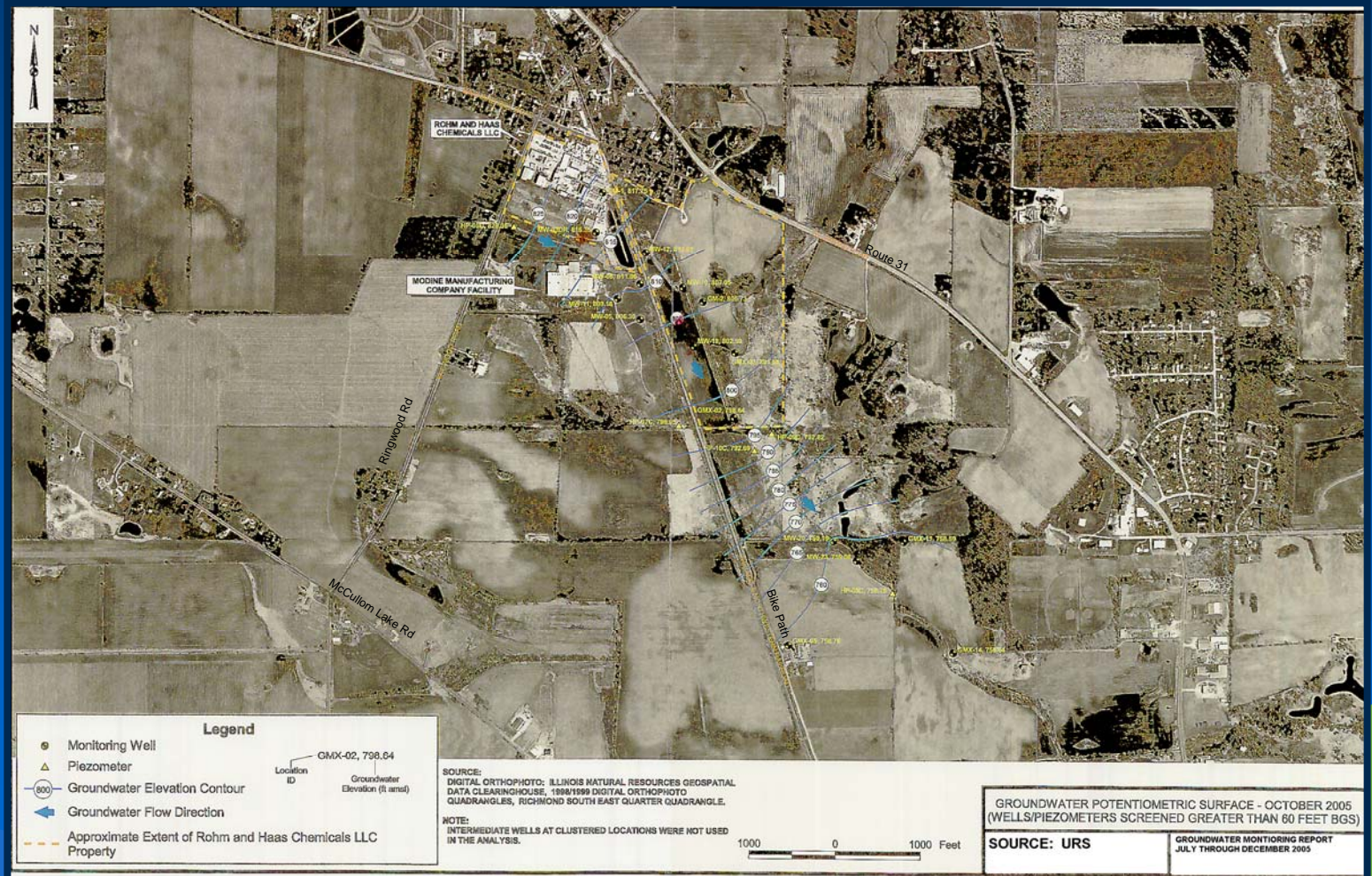
MCL IN DRINKING WATER

- 5 ppb
- 2 ppb
- 70 to 100 ppb
- 7 ppb
- 5 ppb
- 10 ppm
- 250 ppm (secondary)

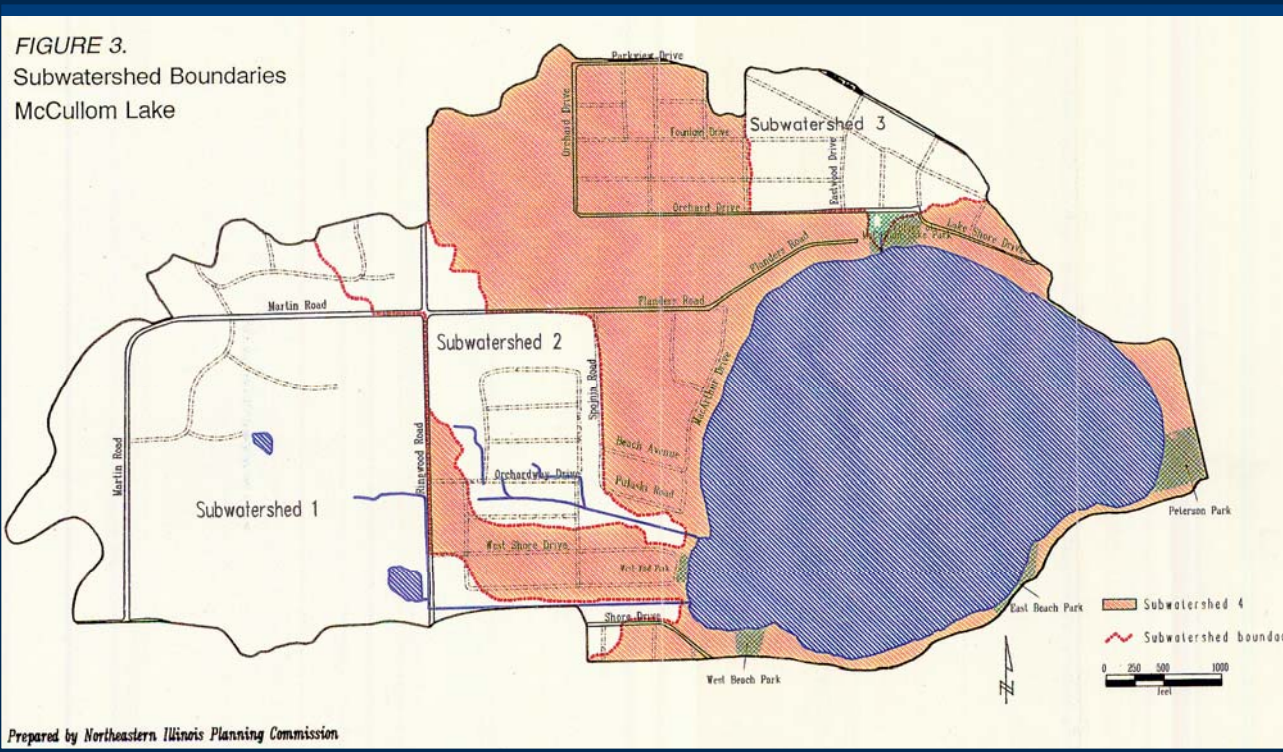
Groundwater Flow Direction - Shallow



Groundwater Flow Direction - Deep



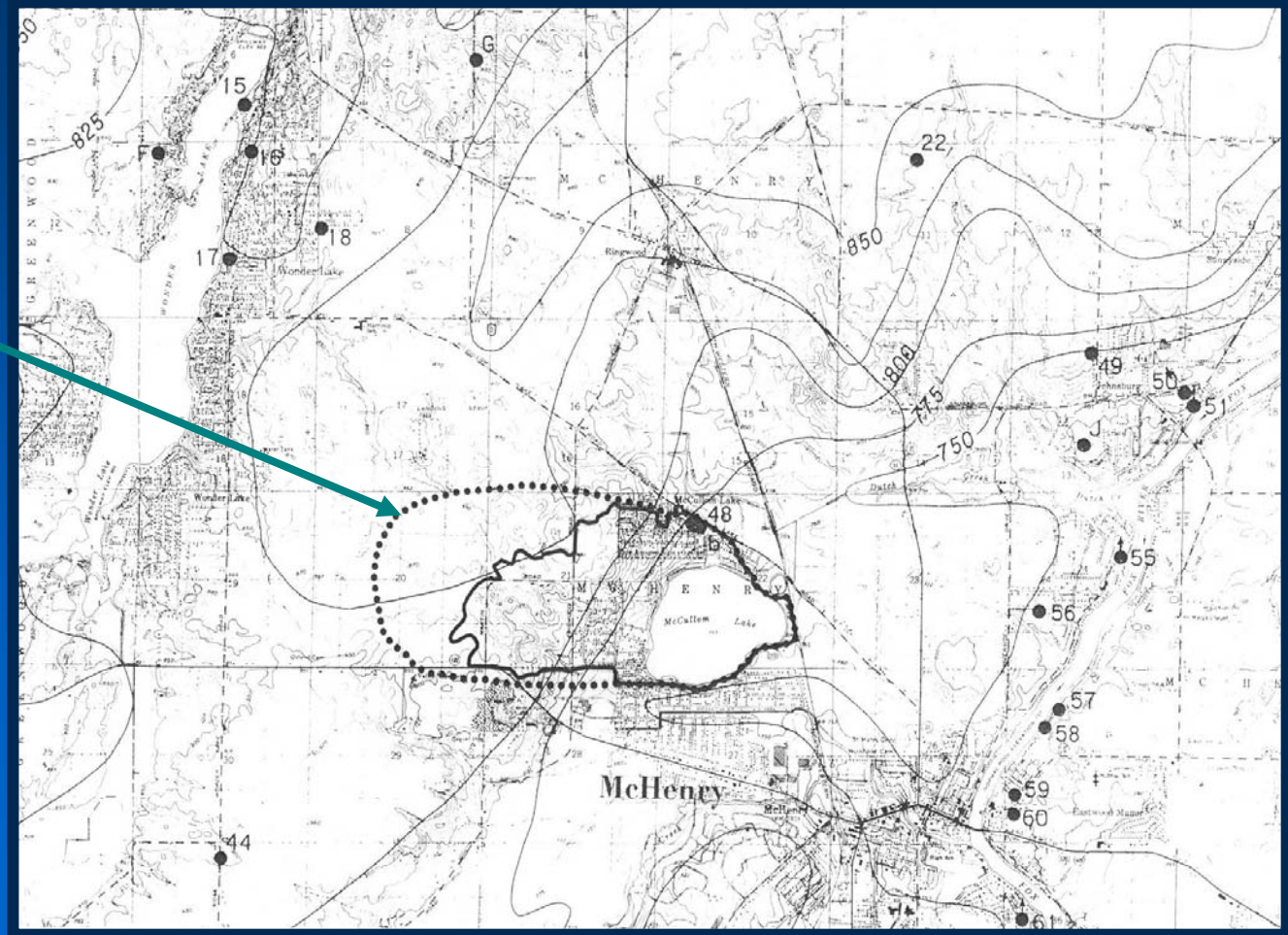
McCullom Lake Watershed



- Well defined watershed
- Located south of McCullom Lake Rd
- Recharge area for shallow groundwater

McCullom Lake Surface & Subsurface Watershed

- Subsurface watershed
- Recharge area for shallow groundwater



SOURCE: "Water in Sand and Gravel Deposits in McHenry County, Illinois"
Nicholas and Krohelski (1984)
In cooperation with the McHenry County Planning Commission

McCullom Lake Water Quality Data

Bacteriological Quality

- **McCullom Lake Historical Data**
- **Beach Sampling Data**
- **McHenry County Department of Health**
www.mcdh.info

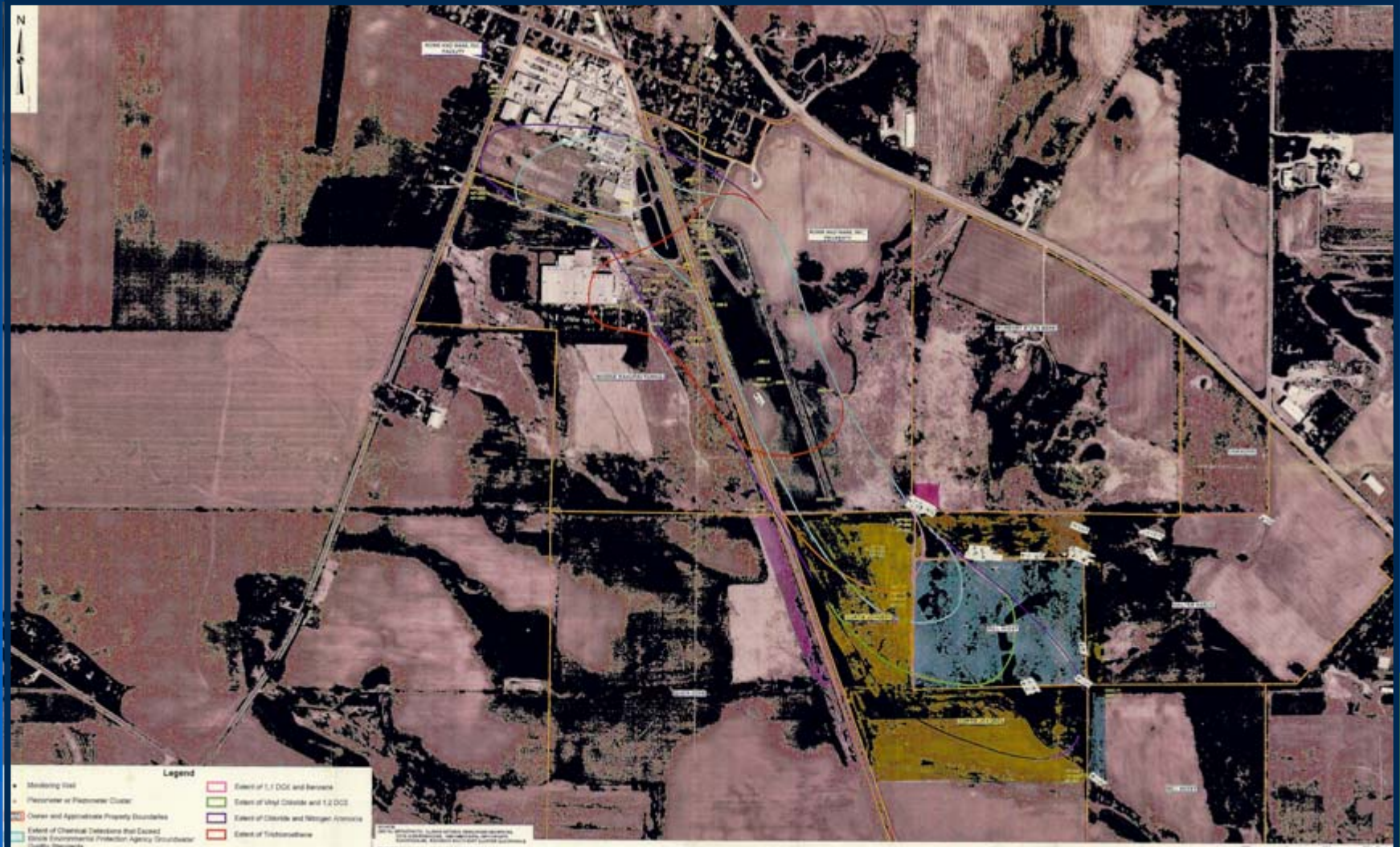
Extent of Contamination Plume



PROVIDED BY:
Rohm & Haas



Extent of Plumes by Constituent



PROVIDED BY: Rohm & Haas

VOC Water Sample Locations – McCullom Lake



- Five private water wells
- One non-community public water supply
- Volatile Organic Compound (VOC) screen (24 different compounds)

Water Sample Results – McCullom Lake

One detection

- Private water well
- 1,1,1 Trichloroethane (general solvent)
- Not known to be carcinogenic
- 1.5 parts per billion
- MCL 200 parts per billion
- Well re-sampled to confirm results
- Additional samples

Additional Information

- ✓ McHenry County Dept. of Health
www.mcdh.info
815-334-4585
- ✓ Centers for Disease Control and Prevention
www.cdc.gov
- ✓ Agency for Toxic Substances and Disease Registry
www.ATSDR.cdc.gov
- ✓ Illinois Environmental Protection Agency
www.epa.state.il.us
www.epa.gov

- ✓ Stan Black
- Illinois Environmental Protection Agency
- Community Relations Coord.
- 217-785-1427

stan.black@epa.state.il.us

stan.black@illinois.gov

- ✓ Tom Baughman
- Illinois Dept. of Public Health
- Toxicologist
- 630-293-6800

- ✓ Dan Guif
- McHenry County Dept. of Health
- Environmental Health Supervisor
- 2200 N Seminary
- Woodstock IL 60098
- 815-334-4585

deguif@co.mchenry.il.us

- ✓ Patricia Nomm
- McHenry County Dept. of Health
- Director of Environmental Health
- 2200 N Seminary
- Woodstock IL 60098
- 815-334-4585

pmnomm@co.mchenry.il.us